



2009583

### Revised Basis of Design and Specifications for Plant Material at the Libby Screening Plant Area

The revised specification presented below are based on the October 2, 2002 meeting with Mel and Lerah Parker (attended by Volpe and CDM representatives) and the new dimensions of the north and south bank areas to be re-planted.

**Area Description and Size:** The plant material and specifications provided below are for the upper section of the reconstructed Rainy Creek channel. This is the section from the highway down-gradient to the culvert, a distance of approximately linear 153 feet. The size of the area is as follows:

Bank	Area to be Planted	Area to be Seeded	Total
North	1,830	2,442	4,272
South	<u>2,346</u>	<u>2,958</u>	<u>5,304</u>
	4,176	5,400	9,576

**Plant spacing:** The following plant spacing was discussed during the meeting. Cottonwood, birch and alder at approximately 10-foot intervals; chokecherry and elderberry at approximately 8-foot intervals, willow at approximately 7-foot, and the smaller shrubs at approximately 3-foot intervals. To simplify the design, plants were classified by the relative size they would become within 5 years after planting. After 5 years of growth, the cottonwood, birch, alder, chokecherry, elderberry, and willow plants would have a crown diameter ranging from approximately 6 to 12-feet, and the shrub crown diameter would range from 3 to 4-feet. To simplify the design, the number of plants needed for the area was determined using a theoretical spacing of 9 feet for the larger trees/shrub species and 3 feet for the smaller shrub species.

**Bank Width:** The new bank widths are as follows: The north bank width varies from 10 to 14 feet; an average of 12 feet was used to determine the number of rows to use. The south bank varies from 10 to 18 feet. Since most of the south bank is in the 16 to 18-foot range, 17 feet was used as an average.

**Number of Rows:** The original design called for 2 rows of plant material on each bank. Based on the increase in bank width, 3 and 4 rows are specified for the north and south banks, respectively. Refer to Figure 1, attached.

**Number of trees and shrubs:** The original design called for approximately 380 trees and shrubs to be planted in this area. Using the configuration described above, approximately 360 trees and shrubs would be planted.

#### Species, Size and Quantity of Plant Material

Botanical Name	Common Name	Preferred Size	Alternate Size	Quantity*
Populus tricarpa	black cottonwood	burlapped	—	10

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<i>Betula occidentalis</i>	water birch	3 gallon	2 gallon	10
<i>Alnus incana</i>	mountain alder	3 gallon	2 gallon	10
<i>Alnus viridis sinuata</i>	Sitka alder	2 gallon	1 gallon	5
<i>Salix bebbiana</i>	Bebb willow	40 in <sup>3</sup> tubes	—	10
<i>Prunus virginiana</i>	chokecherry	2 gallon	1 gallon	10
<i>Sambucus racemosa</i>	red elderberry	2 gallon	1 gallon	5
<i>Spiraea douglassii</i>	rose spirea	1 gallon	—	80
<i>Rosa nutkana</i>	Nootka rose	1 gallon	—	135
<i>Symphoricarpos alba</i>	common snowberry	1 gallon	—	85
			Total	360

\* Quantity of individual species can vary, but not by more than 20%. Total number of plants should equal 360.

**Installation of Plant Material:** Figure 2 shows a conceptual rendering of the approximate density of plant material on a section of the north bank. The upper drawing shows the location of trees (T) and shrubs (S) if the spacing was done uniformly. Rows 1 and 2 have 17 trees and 34 shrubs, and Row 3 has 51 shrubs. However, to make the area appear more natural, the plant material will not be planted in rows nor will they be evenly spaced. The lower drawing shows a conceptual spacing of trees and shrubs, and shows the approximate diameter of plant crowns after 5-years growth. This demonstrates that there will a relatively closed canopy of vegetation in this area, especially at the toe of the embankment, within 5 years. Additionally, the tree canopy should extend out and cover a good portion of the rip-rap in the bank-full portion of the stream channel.

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